Sustainability in Practice
Testimony submitted by Rosemarie Andolino
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Transportation/Housing and Urban Development
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Thank you, Chairman Olver (Congressman Latham and the other Members of the Subcommittee). My name is Rosemarie Andolino, and I am the Commissioner of the Chicago Department of Aviation. I appreciate the opportunity to appear before you today to discuss the sustainable initiatives we have implemented at our airports.

The City of Chicago Department of Aviation, or CDA, is the owner and operator of O'Hare and Midway International Airports. Under the leadership of Mayor Richard M. Daley, the CDA is committed to increasing the efficiency, capacity and environmental sustainability of our airports. Chicago's airports play a key role in the global aviation system. Today, O'Hare and Midway handle just under 82 million passengers annually and provide travelers with direct and nonstop service to more than 230 cities worldwide. Chicago's airport system is more than a gateway for millions of travelers; it also serves a vital role in global commerce, shipping and receiving 1.2 million tons of freight, mail and goods each year.

O'Hare and Midway International Airports are major economic engines for our city, the State of Illinois, and the entire Midwestern region, generating nearly $45 billion in economic activity and 540,000 jobs. In addition, the City's plan to modernize O'Hare International Airport through the O'Hare Modernization Program, or OMP, will create up to 195,000 new jobs and add $18 billion to the Chicago region's community.

Construction of the OMP has been underway since 2005 and it continues to make great progress securing Chicago's position as the center of the global aviation system. The OMP is reconfiguring O'Hare's outdated intersecting runway system into a parallel runway configuration while substantially reducing delays and increasing capacity at O'Hare well into the future.

The OMP has already completed three major infrastructure projects. In 2008, the OMP opened new Runway 9L-27R, which was the first new runway at O'Hare since 1971. Also in 2008, we completed a 3,000 ft. extension to O'Hare's busiest runway and a new air traffic control tower. All three projects opened on or ahead of schedule, and nearly $40 million under budget. The two runway projects have already had a considerable and positive impact on operations at O'Hare and the U.S. Aviation System. The ability to utilize the new Runway 9L-27R has increased O'Hare's arrival rate by 22 percent.

Construction continues on Runway 10C-28C, a Group VI capable runway being built to accommodate larger aircraft and further reduce delays and add capacity at O'Hare. Design and planning efforts for the Completion Phase of the OMP, which includes two additional new runways, the extension of another runway, a new South Air Traffic

Control Tower, a western terminal and related facilities has begun. Sustainability measures will be incorporated into all the above new OMP projects. We expect to begin construction for the Completion Phase later this year.

The Sustainable Initiatives of the O'Hare Modernization Program

As we move forward with the remainder of the OMP, our commitment to employing the most progressive and innovative sustainable measures in the industry will continue. Under Mayor Daley's leadership, the City of Chicago has achieved national recognition for being on the cutting edge of environmentally friendly initiatives. At the Chicago Department of Aviation, sustainability initiatives and efforts are not only possible at O'Hare and Midway - they are essential.

OMP Sustainable Design Manual: When the City embarked on construction of the OMP, it looked for ways to incorporate sustainability into the program in order to meet Mayor Daley's commitment to incorporating green initiatives into projects across the city of Chicago.

At the time, because there were no existing standards for airports, the City assembled a group of aviation and environmental industry experts to create our own guidelines based on the organizational structure of the U.S. Green Building Council (USGBC) Leadership in Energy Efficient Design, or LEED. The result was the OMP Sustainable Design Manual (SDM), which the City introduced in December 2003.

The manual divided OMP projects into four categories: Civil Airside; Civil Landside; Occupied Buildings; and Unoccupied Buildings and also developed a rating system to recognize and reward design and construction accomplishments. The rating system, which awards from 1 to 5 "green airplanes," allows the OMP to measure its progress throughout the design and construction process. Earning even one green airplane on a project is excellent. It shows that a project has not only met all of the requirements, but has gone above and beyond to achieve extra points.

The SDM was just the beginning. In 2009, it was replaced with the updated and enhanced ***Sustainable Airport Manual***, or SAM, which was unveiled by Mayor Daley at an international Airports Going Green conference held in Chicago and hosted by the Chicago Department of Aviation and the American Association of Airport Executives (AAAE).

The SAM integrates airport-specific sustainable planning and practices from the design process through construction, operations, maintenance, and all airport functions and those of its tenants into one manual for green airports.

As was the case with the SDM, the SAM applies the spirit and intent of USGBC LEED rating system's concepts to all aspects of airport design and construction. The development of the SAM has truly been a collaborative effort. The SAM is the result of

the contributions from nearly 200 airport executives, environmental experts and industry leaders. The contributors attended workshops, participated via Webinars, and worked within committees to provide cutting-edge, real-world examples and recommendations.

The SAM incorporates best practices, new technologies and lessons learned from six years of design and construction on the OMP, as well as other green projects at airports around the world. Because design and construction activities are only part of an airport's functions, with the help of our airport partners and industry experts, we are creating additional chapters for SAM to incorporate sustainability into airport planning, daily operations and maintenance, and concessions and tenants.

We plan to finalize these chapters this year, however, the airport's green efforts have only just begun. The CDA will continue to seek involvement from its industry partners, because the SAM is intended to be a living document that will continuously evolve, improve and grow as future technologies emerge.

OMP Balanced Earthwork Program: Thus far the OMP has handled more than 17 million cubic yards of soil to build the runways and supporting infrastructure projects. By implementing an innovative balanced earthwork program, all of this soil has been kept onsite instead of being hauled away and dumped at area landfills. This has saved well over $120 million.

For example, on the Runway 10C East Mass Grading Project, the OMP moved nearly three million cubic yards of soil to create a new South Airfield Detention Basin and fill in the existing detention basin. The contractor on the project used a cut and fill method to excavate the soil for the new basin and place it in the existing basin, all while maintaining the required stormwater detention capacities. This efficient process allowed the contractor to handle the soil only once and to reuse excavated soil from the new basin as fill for the old basin, which saved the cost of double-handling over 2 million cubic yards of soil while shaving a year off the construction schedule. We have estimated the cost savings associated with the elimination of double handling the soils material to be approximately $15 million.

In addition to the cost and time savings, the overall Balanced Earthwork Program also serves to reduce congestion and wear on area roadways and minimize emissions from haul trucks traveling off site. We estimate that our program has already saved more than 500,000 haul trips, thereby eliminating over 40 million vehicle miles traveled, and saving six million gallons of diesel fuel. By minimizing off-site haul and reusing materials on-site, our efforts have resulted in over 70,000 tons less carbon dioxide produced , which is equivalent to the carbon dioxide reduced by a forest of over 13,000 pine trees, and is equivalent to the amount of carbon dioxide produced by the energy consumed by almost 6,000 homes.

Energy savings: Besides the earth work savings realized by the construction techniques of the South Airfield Detention Basin, its unique design incorporates the use of a bentonite slurry wall to cut off ground water infiltration pressure. Without this feature,

ground water would have been required to be collected through under drains located beneath the basin liner walls and pumped 55' to the surface. This could have resulted in over 500 million gallons per year of water released in already choked surface streams. In not pumping this water, over 110,000 kWh of energy is saved annually, or enough to power 25 homes.

OMP Requirements for Construction Equipment: Another successful green initiative involves the City's forward thinking regarding requirements for construction equipment. Five years ago, the OMP mandated the use of Ultra Low Sulfur Diesel (ULSD) Fuel for all on- and off-road construction equipment greater than 50 horsepower, for cleaner emissions; well ahead of the federal government's mandate for use of ULSD Fuel, which takes effect this year.

The OMP also required all but the newest construction equipment to be retrofitted with particulate traps or oxidation catalysts for cleaner emissions. Currently, 76 percent of all onsite construction equipment is Tier 2 or newer.

OMP Materials Recycling and Reuse: Based on a review of 19 construction projects, the OMP has recovered nearly 98 percent of all construction-demolition materials (concrete, asphalt, soil) and reused them on-site, thereby diverting them from landfills. The OMP has reused over 100,000 tons of reclaimed asphalt grindings and crushed-concrete aggregate for service and construction haul roads, parking, and other projects.

To date, the OMP has realized almost $3 million in savings in the reclamation and re-use of crushed concrete and asphalt materials on-site. This number will continue to grow as the program moves forward.

Additionally, the OMP uses local and regional materials for construction to save vehicle miles traveled, roadway and vehicular wear and tear, while promoting the local economy and providing jobs for the region. To date, nearly 90 percent of construction materials have been obtained from regional sources sustaining the local economy.

We are continuously looking for new ways to improve our environmental stewardship while reducing our use of materials, and finding ways to recycle our construction waste while also saving money. In fact, just a few weeks ago, we finalized a revision to a detailed Runway/Taxiway shoulder specification to include an optimization of materials and use of recycled concrete base material. Just this one small revision will save over $1 million and 18,000 tons of new material for the shoulders on a 10,000 foot runway with a taxiway. We are recycling what would otherwise be waste material, reducing the harvest of new materials, and decreasing the environmental impact due to the transportation of the waste material off-site and of the new aggregate from the quarry to the job site.

Green Roof Space: The creation of green roof space is a key component of going green across the City of Chicago and at our Airports. By incorporating green roof coverage atop airport facilities, we are helping to counteract the Urban Heat Island Effect generated by

large amounts of impervious surfaces such as concrete, typically found at an airport. In addition, the benefits of creating green roof space include lower operating costs; improved long-term roof performance**;** reduced air emission impacts; improved air quality**;** interior and exterior noise reduction; and reduced storm water runoff.

There are currently five green roofs at O'Hare and six more are already in the design and construction phases. Today, there is nearly 34,000 square feet of green roof space at O'Hare with an additional 350,000 square feet of vegetated green roof area in design or construction.

OMP Wetlands: The OMP is replacing 154 acres of low quality, inaccessible wetlands on Airport property with nearly 450 acres of higher quality wetlands within various locations in Northeastern Illinois, at a cost of more than $44 million (no cost to local taxpayers). The replacement wetlands are providing a more natural environment for birds and wildlife, while increasing passive recreation space in neighboring communities.

OMP North Air Traffic Control Tower: The Federal Aviation Administration (FAA) North Airport Traffic Control Tower (NATCT), which opened in November 2008, features nearly 10,000 square feet of vegetated green roof space on top of the administration building, making it the first on-airport FAA facility in the nation to feature a green roof. The tower truly represents the OMP's commitment to sustainability, a commitment that has influenced other airports, industry associations and the federal government to think about ways to incorporate "green initiatives" into their projects.

In addition, the NATCT structure was designed to achieve a minimum 20 percent increase in energy efficiency over standard design and to reduce water usage by over 20 percent, saving 7,000 gallons per year. Through innovative construction waste recycling efforts, over 90 percent, or 280 tons, of construction waste from the project was diverted from area landfills. Low VOC emitting materials are also featured in the structure's interior to improve indoor air quality. The tower also includes preferred parking for carpools, vans, fuel efficient and low-emitting vehicles; building products with nearly 15 percent recycled content; and nearly 40 percent of materials from local sources.

During construction of the tower, the OMP went beyond the original design plans by using 100 percent Purple Board dry wall for the interior, the best product available for deterring mold; adding native shrubs, trees, grass swales and planting beds to the original landscaping design; and recycling asphalt grindings from the job site for use on other OMP projects. Construction was completed in just 24 months, instead of the 40 months it typically takes to build a tower.

As a result of the successful green elements incorporated into the project, we are extremely proud that the tower earned a four Green Airplane Certification based on our Sustainable Airport Manual rating system and is the first in the U.S. to earn USGBC LEED Silver certification.

OMP Sustainable Accolades: The OMP has been recognized for excellence by the USGBC, the Illinois Sustainable Technology Center, the United Nation's Environmental Programme for Liveable Communities, and by industry publications such as Engineering News Record, as well as other government agencies for innovation and creative thinking. We are frequently invited to share our information with other cities and airports across the nation and around the world.

Going Green Expands Across Chicago Department of Aviation

I was appointed Commissioner of the Chicago Department of Aviation in March 2009 by Mayor Daley, in addition to my responsibilities as Executive Director of the OMP. Since that time, my goal has been to expand and build on the OMP's successful green initiatives to include the entire aviation department at both of our airports.

Airports Going Green Conference: In August 2009, the CDA held the second "Airports Going Green" conference in Chicago, where we unveiled our enhanced Sustainable Airport Manual, or SAM, which was previously mentioned in my testimony. This exciting conference attracted nearly 300 aviation, environmental and industry professionals; and featured presentations from airport officials and industry experts from across the U.S., as well as Canada, France and Germany.

In addition to covering the sustainable initiatives of the OMP that were just discussed in this testimony, the conference covered the green initiatives implemented at other major airports. Session topics ranged from LEED terminals and wind turbines, to recycling and solar installations. "Airports Going Green" was a phenomenal success and the feedback we received from both attendees and presenters was very positive.

The CDA plans to host the 3rd Annual "Airports Going Green" conference in Chicago this November 14th – November 17th. This year our conference will immediately precede the USGBC Greenbuild International Expo in Chicago, which is the world's largest expo devoted to green building and will showcase the latest in innovative products and services. We are encouraging airport representatives to come to Chicago for our Airports Going Green conference and to stay for Greenbuild.

More Green Initiatives at Chicago's Airports: The SAM and its guiding principles are integrated into all current practices at O'Hare and Midway. The "Airports Going Green" conference and SAM continue to inspire CDA employees and contractors to think green on every project and in every role at our airports. A number of additional new initiatives have recently been introduced at Chicago's airports.

The CDA has installed water recycling containers at security checkpoints at O'Hare and Midway, which allow passengers to empty liquids without having to dispose of the containers. This program reduces the amount of liquid weight entering the airports' compactors and allows for water bottle reuse. The receptacles are piped so that collected gray water can be re-used for a variety of purposes, such as watering airport landscaping.

The restaurants at O'Hare and Midway are incorporating sustainability into their everyday operations by recycling materials such as cooking oils and packaging, and utilizing energy efficient equipment.

Recycling efforts are an important part of both airports' daily operations. Blue recycling containers are located throughout the terminals to serve as collection sites for three waste streams - glass, aluminum cans and clean paper. Airport custodians and concessionaires recycle cardboard and deposit it into designated recycle compactors.

The CDA also considers the environment while maintaining cleanliness throughout the terminals. Our custodians use Green Seal cleaning products and have eliminated the use of most aerosol sprays to clean and disinfect airport facilities.

Since 2005, the CDA has continually adjusted and replaced plumbing fixtures in airport facilities, resulting in more than 60 percent savings on water consumption.

The CDA is continuously replacing incandescent bulbs with energy-saving LED and solar-powered LED lights on the airfield and throughout the airport's facilities. To date, more than 1,300 LED light fixtures and 100 LED aviation obstruction lights have been installed at O'Hare.

Similar to the cleaner fuel requirements for OMP construction vehicles, the CDA has integrated clean-fuel vehicles into O'Hare's ground transportation fleet mix. The CDA uses ULSD fuel in its entire fleet of snow removal and airside/landside maintenance vehicles.

Other businesses that operate at our airports are also following our green lead. The new FedEx Cargo Building, currently under construction at O'Hare Airport, will feature close to 200,000 square feet of green roof coverage, which will make it one of the largest green roof areas in the U.S. FedEx is seeking to earn USGBC LEED Silver status for this project.

In addition, Enterprise Rent-A-Car is now constructing a new facility at O'Hare with a goal to obtain USGBC LEED Silver certification. The facility, which will open this summer, will feature green roofs on two buildings, and incorporate several sustainable initiatives such as high efficiency fixtures to reduce water consumption and the use of recycled construction materials.

Airport Sustainability Performance Standards

Overall, the work on the OMP and across the CDA demonstrates that going green at airports is possible, cost effective, and more importantly - it is the right thing to do. And the CDA has found that many other aviation and industry experts have come to the same conclusion.

Airport Sustainability Institute: As has been discussed during this testimony, there is a lot of interest in the aviation industry and actions taken by many airports to establish sustainability programs or reduce environmental impacts of their operations.

However, there are currently no independent organizations whose sole mission is to focus on airport sustainability.

To that end, the Chicago Department of Aviation is working with industry experts on a new initiative called the Airport Sustainability Institute (ASI). The ASI would be an independent, not-for-profit agency that would promote sustainability performance standards, and could objectively assess and rate airports, certify their sustainability level and recognize their achievements.

ASI has the following goals: to reduce the impact that airports have on local air, water, and land quality; to reduce airport emission of greenhouse gases and provide an offset for the aviation industry; and to improve the image of aviation and airports as having a positive and beneficial impact on their communities.

The purpose of this program is to promote an enterprise approach to sustainability by recognizing performance in five key areas of human and environmental health: workplace, transportation, construction, supply chain, and human resource management.

The CDA is working with Members of Congress, other airports and industry partners to win broad support for this important initiative.

Growing the Green Economy

As we continue to implement environmentally-friendly practices at Chicago's airports, we are also helping to promote green jobs in our industry. Just like our SAM, sustainable airport initiatives will continue to evolve as future technologies emerge. By striving for, and applying sustainable goals into every airport project and activity in accordance with our SAM, we are facilitating opportunities for green innovation and green jobs.

Conclusion

The Chicago Department of Aviation has undertaken many green initiatives and there are many more to come. Chicago's airports are going green for a number of reasons: to help protect the environment; to lower utility costs; to conserve natural resources; to reduce the airports' carbon footprint; to optimize energy efficiency; to improve the working environment of our employees, to improve the travel experience of our customers; and to maintain our collective health and that of the planet.

Airports nationwide have recognized that green alternatives do exist, and that more are being created every day. The industry also realizes the massive potential for whole new economies from creating, manufacturing, and implementing green technologies.

In Chicago, we believe that going green doesn't have to cost more, and that in fact going green can save money. We believe going green reduces our dependency on other sources of energy. We believe that our airports need to be good neighbors to the surrounding communities. We also believe we have proven the cost effectiveness of going green.

More importantly, we believe it is the right thing to do.

We are grateful for the support, and we encourage the Members of Congress to continue these critical efforts.

Thank you for the opportunity to speak to you today.

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